Claim 4. (Thrice amended) A recombinant multimeric protein according to claim 1, wherein the heterologous fragments in monomer A and in monomer B are specific ligands of the immune system, selected from the group consisting of CD lymphocyte surface proteins, antibodies, antibody fragments, antigens, and antigen fragments.

REMARKS

Claims 1-17, 20 and 22-26 are pending. The Office Action mailed July 16, 2002 rejecting pending claims 1, 4-12, 17, 23 and 26 and objecting to claims 2, 3, 13-16, 22, 24 and 25 has been received and its contents carefully noted.

Claim 4 has been amended to address points raised in the Office Action and to improve form. The scope of the claim has not been narrowed. Claims 1, 12 and 20 are independent. It is submitted that no new matter has been introduced by the present amendment and entry of the same is respectfully requested.

Rejections under 35 U.S.C. §112, second paragraph

Applicants disagree with the Examiner's allegation that the term "CD type" is indefinite. Nevertheless, in an effort to expedite prosecution, claim 4 has been amended to recite "CD lymphocyte surface proteins," which is synonymous and of the same scope.

The meaning of the term "CD lymphocyte surface proteins" is clear. Enclosed in the concurrently filed IDS is a copy of part of the FACTS BOOK edited by Barclay *et al.*, which is focused on the "cluster of differentiation" (CD) molecules. The introduction of the book, called "Aims of the book," indicates that the CD lymphocyte proteins are a family of antigens expressed on the surface of leukocytes. Chapter 2 of the book (pages 2-17) points out some common functional and structural properties shared by these proteins. See, *e.g.*, Table 1 and Figure 1, which list common structural features (*e.g.*, domains and repeats) of the molecules. Thus, for the skilled person, the meaning of the term "CD lymphocyte surface protein" is

unambiguous and refers to the nomenclature defined in International workshops, the reference thereof being made in the introduction of this chapter.

Claims 5 and 6 were rejected for depending on an indefinite base claim. These claims should now be in condition for allowance.

Applicants respectfully request that the rejection under 35 U.S.C. § 112, second paragraph be withdrawn.

Rejections under 35 U.S.C. §102(b)

The allegation that claims 1, 4-12, 15, 17, 20, 23 and 26 are anticipated by the PCT publication Biogen WO 91/11461 ("Biogen") is traversed.

The instant claims recite, *i.a.*, a recombinant multimeric protein, comprising ...

b) a polypeptide fusion monomer B, which consists of a cysteine-containing C-terminal fragment of the β chain of C4BP, and a polypeptide fragment which is heterologous in relation to the β chain. (emphasis added).

The Examiner appears to allege that Biogen discloses part b) of the above claim. That is, the Examiner alleges that Biogen discloses human C4BP comprising a 45 kD polypeptide "which is presumed to be the beta chain, absent evidence to the contrary." However, at best, Biogen refers to a paper by Hillard *et al.* which reports that *naturally occurring* C4BP may comprise a 45 kD polypeptide. Neither Biogen nor the Hillard paper discloses a recombinant multimeric peptide that comprises a polypeptide fusion monomer B, which consists of a cysteine-containing C-terminal fragment of the β chain of C4BP, and a polypeptide fragment which is heterologous in relation to the β chain. In order to generate a fusion monomer comprising a fragment of the β chain of C4BP and a heterologous sequence, or to generate a recombinant multimeric protein comprising the fusion monomer, it would have been necessary to clone the relevant sequences of the β chain of C4BP. It is not disclosed whether Hillard's 45 kD protein is the same as the β chain of C4BP, and moreover, Biogen presents no evidence that

this 45 kD protein had been cloned at the time its PCT was filed, or even that sufficient structure of the 45 KD protein was known to allow it to be cloned. Lacking knowledge of such a structure, or a clone comprising the instantly recited fragment of the β chain of C4BP, Biogen could not have generated the fusion monomer recited in the instant claims.

It is clear that the recombinant heteromultimers disclosed in the Biogen PCT do not comprise a fusion monomer B that consists, in part, of a cysteine-containing C-terminal fragment of the *β chain* of C4BP. Rather, the C4BP chains in Biogen's heteromultimers are all C4BP *alpha* chains. See, *e.g.*, Biogen at page 5, lines 14-21, and figures 9A, 9B and 9C.

To anticipate a claim, a reference must disclose all material elements of the claim. Such is clearly not the case here. Therefore, it is requested that the anticipation rejection be withdrawn.

Claims 2-3, 13-16, 22, 24 and 25, which were objected to as being dependent upon a rejected base claim, should now be in condition for allowance.

In view of the preceding amendments and remarks, the application is believed to be in condition for allowance, which action is respectfully requested.

Should any questions remain, please contact the undersigned.

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Respectfully submitted,

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APPENDIX 1

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 4. (Thrice amended) A recombinant multimeric protein according to claim 1, wherein the heterologous fragments in monomer A and in monomer B are specific ligands of the immune system, selected from the group consisting of CD lymphocyte surface proteins ~~lymphocytes surface proteins of the CD type~~, antibodies, antibody fragments, antigens, and antigen fragments.